

microcellular services, the density of population needed to support economic service will be much higher, and there are vastly greater areas where, in all likelihood, microcellular voice services will *never* be deployed. If huge tracts of low density territories are included in regions licensed to a single provider, the spectrum is effectively tied up and unavailable for an entrepreneur who might use the spectrum for a socially useful purpose -- perhaps a different variety of PCS -- tailored to rural areas.

**C. THE COMMISSION'S TENTATIVE PROPOSALS FOR 2 GHZ PCS
SERVICE AREAS WILL NOT SERVE THE PUBLIC INTEREST**

In contrast to the MSA/RSA licensing scheme, the tentative proposals for 2 GHz PCS licensing are not well suited to achieving the Commission's PCS goals. The Commission has solicited comment on national service areas as well as service areas based on Rand McNally Major Trading Areas ("MTAs"), Rand McNally Basic Trading Areas ("BTAs"), and local access and transport areas ("LATAs").³² As discussed in further detail below, each of these options has significant drawbacks when compared with MSA/RSA licensing.

National License Areas. National license territories rank as the worst possible choice of all proposed options. Although the Commission states such licensing territories would "maximize economies of scale and scope,"³³ McCaw has already demonstrated that the existence of such benefits are questionable. Given the preclusionary effects of national

³² Notice at ¶60.

³³ Notice at ¶60.

license territories on entry opportunities, such territories are ill-suited to the Commission's goals of competition and diversity of service.³⁴ Furthermore, as discussed in above, such territories promote an inefficient use of spectrum and would not necessarily speed deployment of service, particularly to rural areas. Accordingly, national license territories are plainly contrary to the public interest.

Major Trading Areas ("MTAs"). The Commission has proposed, as one alternative, the use of the 47 MTAs defined in the *Rand McNally Atlas and Commercial Guide*, plus Puerto Rico and Alaska. The stated rationale for MTAs is merely "greater scale economies."³⁵ In this regard, MTAs are vulnerable to the same criticisms as national licenses. It also appears, however, that MTAs might to be an alluring choice for the Commission because they do not appear to overwhelm the FCC with a large number of PCS licensing decisions. In addition, they superficially seem to define real "markets."

Neither of these attractions is legitimate. Obviously, the Commission should not adopt a licensing scheme that is ill-suited to the services concerned simply because that scheme is somewhat less taxing on its administrative resources than more appropriate licensing alternatives. Thus, MTAs should not be justified on the grounds of convenience. The case for using MTAs as a good approximation of 2 GHz wireless service markets has

³⁴ In the IVDS proceeding, for example, the Commission stated "reserving one of only two frequency segments for a nationwide license is antithetical to our goal of fostering a competitive market in IVDS communications and would unnecessarily restrict the flexibility of entities that wish to use IVDS to market their products or services." *Amendment of Parts 0, 1, 2, and 95 of the Commission's Rules to Provide Interactive Video and Data Services*, 7 FCC Rcd at 1638.

³⁵ *Id.*

yet to be made, much less proven. McCaw understands that MTAs are no longer included by Rand McNally in its commercial atlases, and it has not been able to obtain an adequate description of how the MTAs were defined even when they were published by Rand McNally. Certainly, the claim that these territories accurately reflect mobile service areas is speculative at best. While it is true that 800 MHz cellular providers have consolidated certain markets, the overlapping and different regionalization and consolidation patterns in cellular do not inspire confidence that MTAs would reflect the boundaries developed through free market forces -- if consolidation and regionalization were to occur at all.

MTAs also raise other difficult problems. As the Commission has recognized, MTAs severely restrict entry opportunities -- there would be over 93 percent less opportunities for firms to participate than would be available using MSAs and RSAs. MTAs also create significant potential problems of spectrum warehousing and could significantly hamper or delay the delivery of service to mid-size urban areas, much less rural areas. Accordingly, McCaw believes that MTAs are not suitable licensing vehicles for mobile services.

Basic Trading Areas ("BTAs"). The 488 BTAs and Puerto Rico, also derived from the *Rand McNally Atlas and Commercial Guide*, suffer from the same problems as MTAs, albeit to a lesser degree. Furthermore, they do not present even the superficial advantage of requiring significantly fewer licensing decisions than an MSA/RSA scheme would entail. Accordingly, McCaw does not support use of BTAs.

Local Access and Transport Areas ("LATAs"). The Commission has solicited comment on licensing areas based on the 194 telephone company LATAs. The *Notice* states that this option "may facilitate efficient integration of PCS into the local telephone infrastructure."³⁶ As discussed above, however, 2 GHz PCS is likely to be a highly localized service, and pockets of PCS service are not likely to cross LATA boundaries in the near term in any event. Under these circumstances, adopting a licensing scheme based on artificial telephone company boundaries does not appear to have any benefits in efficient integration. Indeed, the FCC and the telephone companies themselves, in a different context, have argued that LATA boundaries bear no relation to mobile markets.³⁷

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The Commission's licensing proposals -- nationwide, MTAs, BTAs, and LATAs -- all suffer from severe defects, especially compared to MSA/RSA licensing. MSAs and RSAs will broaden entry opportunities, with commensurate effects on the diversity and the degree

³⁶ *Notice* at ¶60. A similar argument could, of course, be made to support MSA/RSA licensing on the basis that using cellular markets "may facilitate efficient integration of PCS into the cellular infrastructure." Because both existing infrastructures, wired and wireless, have potential to form the backbone for 2 GHz PCS, it is unclear why the local telephone company network should be favored in this manner.

³⁷ *Federal Communications Commission Reply to Motion of the Bell Companies for Removal of Mobile and Other Wireless Services From the Scope of the Interexchange Restriction and Equal Access Requirement of Section II of the Decree* at 3, C.A. No. 82-0192 (D.D.C. Nov. 2, 1992) (stating "[t]he LATAs were not designed for cellular services"); *AT&T Response to Comments and Objections Relating to the Proposed LATA Boundaries* at 26-27, C.A. No. 82-0192 (D.D.C. Nov. 23, 1982) (stating "the technology, economics, customer requirements, and competitive implications of mobile radio services are so different from those of landline services that it would be irrational and contrary to any reasonable interpretation of the Decree or antitrust policies to confine the BOCs' mobile radio systems to the precise LATAs established for landline service"); *The Bell System's Further Memorandum in Support of Its Request for a Ruling That the Regional Companies Are Permitted To Provide Public Radio Service Without Regard to LATA Boundaries* at 4, C.A. No. 82-0192 (D.D.C. May 9, 1983) (stating "[l]andline LATAs do not reflect the entirely different characteristics of the services designed to reach moving vehicles or other mobile units").

of technical and service innovation.³⁸ MSA/RSA service areas also promote competition overall by providing more entry opportunities. And, as discussed above, the perceived economies of scope offered by larger areas may be illusory. As a result, the Commission should utilize MSA and RSA divisions for licensing new 2 GHz personal communications services.

IV. CELLULAR CARRIERS SHOULD BE ENTITLED TO PURSUE PCS SPECTRUM OPPORTUNITIES WITHOUT ARTIFICIAL LIMITATIONS OR CONSTRAINTS

Arbitrary set-asides and restrictions on participation in new services do not serve the public interest. The *Notice* nonetheless invites comment on a wide variety of restrictions on cellular carrier participation in the new allocations for "a family of mobile or portable radio communications services which could provide services to individuals and business, and be integrated with a variety of competing networks."³⁹ Based on the unfounded assertion that "competitive benefits may be reduced if cellular incumbents are permitted to acquire PCS licenses within their service areas,"⁴⁰ the Commission has suggested it may be appropriate to preclude cellular carriers from either applying for or acquiring authorizations for a class of new services that extends beyond current cellular offerings and whose parameters the Commission has consciously refrained from defining. This thin justification is stretched to

³⁸ *Notice* at ¶59.

³⁹ *Notice* at ¶39.

⁴⁰ *Notice* at ¶64.

invite comment on barring cellular participation in an open-ended range of services that includes 900 MHz narrowband services and unlicensed services bearing no competitive relation to existing 800 MHz cellular service. The *Notice* also seeks comment on a range of restrictions that includes barring cellular participation even where there is minimal or no service area overlap whatsoever.

Perhaps most illogically of all, the *Notice* suggests at one juncture that cellular carriers should be barred, but that affiliates of wireline cellular carriers would be free to pursue new spectrum opportunities.⁴¹ This would penalize only those independent providers, such as McCaw, that have absolutely prioritized advanced wireless communications among their business ventures. The Commission's proposal may well prohibit participation by the most qualified 2 GHz PCS applicants, for speculative and irrational reasons.

Cellular carriers, like McCaw, have made a substantial and lasting commitment to mobile services. Cellular carriers have transformed the communications infrastructure by offering ubiquitous, inexpensive, and highly personal wireless access services. As the next generation of mobile services moves forward, cellular carriers are poised to offer expertise, capital, experience, and an existing wireless network to complete the telecommunications transition from wired to wireless, and to free all individuals from the constraints of tethered communications. In addition, cellular carriers are also more likely to pursue a beneficial range of offerings within the open-ended family of PCS services that other carriers may not,

⁴¹ *Notice* at ¶76.

such as broadband data, video, and wireless local loop services in competition with landline services. Cellular carriers are optimally suited to bring diverse PCS offerings to the public rapidly, efficiently, and economically.

A. CELLULAR CARRIERS SHOULD HAVE THE RIGHT TO PURSUE NEW SPECTRUM FOR 2 GHz PCS SERVICES TO SUPPLEMENT EXISTING SERVICES WITHIN THEIR CELLULAR MARKETS AND EXPAND THEIR NETWORKS INTO NEW SERVICE AREAS

Throughout the last decade, cellular carriers have revolutionized the way that individuals think about the telecommunications network. Cellular has achieved nearly ubiquitous coverage and, at the same time, has shifted from a mobile service (*i.e.*, vehicular) to a portable service with a nationwide network featuring many advanced "personal communications" capabilities.⁴² Cellular carriers have also eagerly embraced new 2 GHz service possibilities, as evidenced by the extensive cellular participation in experimental offerings at 2 GHz and the development of features within cellular networks to assist the deployment of new 2 GHz services. Given the capacity constraints imposed by the existing 800 MHz cellular infrastructure and practical requirements to maintain analog service, cellular carriers can enhance competition and diversity if allowed to participate in new spectrum allocations. A decision to bar cellular carriers, on the other hand, raises numerous problematic issues that threaten the rapid deployment of PCS services to the public.

⁴² In the first half of 1992, nearly 55 percent of the phones sold by McCaw and its affiliated systems were portable. Approximately 29 percent of the sales were transportable, resulting in purely vehicular phone sales of approximately 17 percent. In southern Florida, in fact, McCaw's cellular systems report that 90 percent of new equipment sales are portable units.

Accordingly, as discussed below, cellular participation in new PCS allocations is fully justified and in the public interest.

1. Cellular Carriers Have Transformed Mobile Communications

Cellular carriers have literally transformed wireless telecommunications into low cost, seamless cellular services blanketing the country. As the Commission noted, this transformation has been evidenced by:

[T]he nationwide availability of cellular service; the competition among cellular providers for customers; the diverse array of service and equipment options; and the aggressive behavior of cellular providers in implementing new technologies such as digital transmission and providing a variety of new services using the cellular spectrum.⁴³

Seven years ago, cellular subscribers numbered less than 100,000. Today, that figure has passed 9 million; industry analysts predict that, in ten years, it will exceed 35 million. Cellular coverage has expanded equally dramatically, swelling from the central areas of a few major urban markets to over 95 percent of the country's population in less than a decade.

The consistent trend toward cheaper, lighter cellular phones also is transforming cellular from a business service to one that has broadening consumer appeal. Advances in the size, weight, convenience, and cost of cellular portables have been especially noteworthy. The demand for portable phones rose from less than 5 percent of total sales in 1987 to more

⁴³ Notice at ¶2. The *PCS Notice of Inquiry* also acknowledged that cellular is "[a] form of PCS [that] has experienced very rapid growth."

than half of McCaw's cellular phone sales for the first half of 1992. As a result of this prodigious growth, cellular is rapidly gaining acceptance as an affordable, convenient, and personal communications service.

There has also been a basic shift from local and regional service to a cellular wireless communications infrastructure that is truly continental in scope.⁴⁴ McCaw, for example, has pioneered the North American Cellular Network ("NACN").⁴⁵ This network enables a cellular customer from a participating system -- Miami, for example -- to roam automatically in any other participating system -- such as Seattle or New York -- using all of the same features that he or she enjoys at home. Thus, voice mail, call conferencing, call forwarding, and the like are available automatically to that customer. Furthermore, anyone who wishes to contact the subscriber need only dial his or her local cellular number; the network will automatically deliver the call to the subscriber so long as his or her cellular phone is in Seattle, New York, or any other participating system. The NACN is a major step towards realizing the ultimate goal of wireless communications -- that of people calling people, not places.

⁴⁴ Because cellular systems have developed extensive geographic coverage, as well as improved service to portable handsets, cellular offers significant benefits that reach beyond the convenience and efficiency of mobile communications. The technology has enhanced the personal safety of thousands of users, enabling them to call for help from remote locations in cases of accidents, illness, or equipment breakdowns. More dramatically, cellular systems have provided the communications backbone for essential public services when natural or manmade catastrophes or other disasters, such as Hurricane Andrew, have incapacitated the landline system.

⁴⁵ The network already links the cellular systems of McCaw and McCaw's affiliate, LIN Broadcasting, as well as Canadian nonwireline systems, the Bay Area Cellular Telephone Company, and numerous nonwireline RSA systems. The final phase of the network's development will be the recruitment of the other A-block systems in the United States, which are now owned predominantly by affiliates of Bell Operating Companies and GTE.

2. Cellular Carriers Can Contribute to the Success of PCS

In the process of bringing services to the public, cellular carriers have acquired the expertise and experience essential to meeting tomorrow's consumer needs. Cellular carriers have aggressively sought to introduce new and innovative PCS services to the public as evident from the enormous range of experiments and proposals already pending before the Commission.⁴⁶ McCaw, in particular, is actively involved in developing new wireless technologies that promote the efficient delivery of personal communications services in a variety of environments, including: (1) residential microcellular service in conjunction with TCI, Inc. in Ashland, Oregon; (2) wireless PBX service in the 864-868 MHz band at its Kirkland, Washington headquarters; (3) multi-frequency handset research involving the 1.8-2.2 GHz bands and the cellular bands; and (4) wireless data communications using a cellular digital packet data ("CDPD") protocol. McCaw has consistently sought to bring the fullest possible benefits of wireless service to the American public.

Cellular carrier participation in the next generation of wireless services can only contribute to technological advances and a panoply of new services benefitting the public. As discussed previously, new 2 GHz services are likely to be highly localized. Yet, if the new services are to prosper, their subscribers will need to access wireless communications when they roam outside their "home" PCS environments, and they will want to do so using the same handset. Otherwise, these subscribers would be forced either to equip themselves

⁴⁶ Cellular carriers, for example, have at least 28 licenses to experiment with Personal Communications Services technologies in various bands.

with multiple handsets, or to choose a single service-specific handset and thereby lose access to the full range of personal communications services.

Part of the solution to this potential problem rests in the development of handsets that can operate on multiple frequencies. The other part of the solution resides in a ubiquitous network that is designed specifically to support communications with mobile customers. The North American Cellular Network has been developed precisely for that purpose and can play a critical role in supporting and enhancing PCS.

The NACN was conceived specifically to provide cellular subscribers with a standard of convenient service equivalent to that of their home systems, anywhere across the United States and Canada. Whenever a subscriber to one of these services leaves his or her home system, he or she will still be accessible on his or her personal number, because the calls directed to that number can be delivered automatically by the NACN to whichever cellular system the roaming subscriber is on at the time. The NACN can be an invaluable benefit to PCS subscribers when they travel beyond the perimeter of their home systems' service areas but still want to remain in touch while on the move. It is in cellular carriers' interest to ensure that the NACN is a hospitable gateway, and that the customer finds cellular service to be an attractive supplement to his or her "home" 2 GHz system.

3. Cellular Carrier Participation Would Promote Competition

Restricting cellular carrier participation in new 2 GHz allocations is competitively unwarranted. "PCS" is a broad term covering an almost endless array of different services,

so any prohibition on cellular participation could preclude competitive entry into services that are different from traditional 800 MHz cellular offerings. Conversely, cellular participation would create strong incentives to promote PCS uses of the existing wireless infrastructure and help ensure multi-purpose consumer hand sets. And, cellular carriers represent a wide range of competitive approaches and diverse interests. As discussed below, the Commission's tentative proposal to bar existing cellular carriers from entry into new PCS spectrum in their own markets would have a number of deleterious effects on the public:

"PCS" is an open-ended concept. PCS is a broad term covering a wide range of known and potential services; some are like cellular, others are not. The *Notice*, for example, solicits comments on barring cellular participation in narrowband 900 MHz PCS services, even though such services are messaging services that are completely complementary to -- and not competitive with -- cellular service. Similarly, no restrictions should rationally be imposed on the offering of PCS devices. Even for licensed PCS services, the range of potential offerings is vast and open-ended, including data and multimedia imaging in addition to voice. Arbitrary restrictions against cellular participation in new spectrum for any and all new PCS services would seem illogical and ill-advised since many new services might not be technically compatible or economically feasible in the cellular band. Yet, cellular carriers might be well situated to pursue such new opportunities.

Cellular faces severe capacity constraints. Cellular services offered in the 800 MHz band are subject to severe capacity constraints, particularly in major urban markets. The lack of capacity primarily is due to the practical need to continue offering analog AMPS

service for the foreseeable future. McCaw, for example, modelled digital phone acceptance for a top-100 market offering digital capability from the middle of 1993, and determined that by the end of 1994, only 25 percent of the users on the system would be digital. By the end of 1996, McCaw estimates that only 50 to 70 percent of the customer base would be digital, depending upon marketing aggressiveness. Furthermore, since capacity increases from digitization do not rise linearly with the percentage of digital users, less than 20 percent of the system capacity would be digital at the end of 1996. Notably, this requirement is a business constraint, and simply deleting the AMPS provision from the Commission's rules will not free cellular capacity. Accordingly, if cellular carriers are to offer new services, many will not be able to use cellular frequencies.

Cellular participation would increase diversity of services. Cellular carriers are uniquely positioned to offer a variety of services in conjunction with the existing cellular network that will not initially be attractive to -- or be feasible for -- new entrants. Cellular carriers, for example, may concentrate on extending wireless services from purely mobile or portable services to ubiquitous wireless infrastructures that have the potential to compete directly with the residential and business offerings of local exchange telephone companies. New wireless services developed by cellular carriers could lead to an entirely new competitive structure in local telecommunications, a goal which the Commission is pursuing in a number of proceedings.⁴⁷ At the same time, as discussed above, these services may

⁴⁷ *Expanded Interconnection With Local Telephone Company Facilities*, FCC 92-441 (Oct. 19, 1992).

not be offered due to capacity constraints unless new spectrum is made available to cellular carriers.

Joint cellular/2 GHz offerings can achieve efficiencies. As described above, PCS can best be provided in conjunction with a cellular network that will serve as a wireless infrastructure and highway. Prohibiting cellular carriers from participating fully in the PCS market along with other entrants weakens carriers' incentives to integrate new PCS systems with 800 MHz cellular systems and will deny consumers, particularly those in rural areas, the fullest possible benefits of PCS. Limiting the participation of cellular carriers in the new PCS arena would waste the knowledge, capabilities, and experience of these entities. Having built many wireless communications systems from the ground up, companies like McCaw understand the complexities of raising capital, negotiating for cell sites, constructing facilities, choosing and developing new technologies, refining pricing and marketing strategies, and effectively meeting customer needs so as to build and maintain a loyal customer base.

4. Constraints on Cellular Participation Would Be Unreasonably Discriminatory or Would Embroil the Commission In Endless Eligibility Questions

Constraints on cellular eligibility for new PCS spectrum allocations raise a number of thorny practical issues. In particular, the Commission has justified the proposed exclusion because "competitive benefits may be reduced if cellular incumbents are permitted to acquire

PCS licenses within their service areas."⁴⁸ At the same time, the Commission notes that new 2 GHz PCS licensees will compete with other services, including "cellular services . . . [and] specialized mobile radio services."⁴⁹ Under these circumstances, if the Commission's competitive rationale is accepted, other service providers holding spectrum for mobile services, including SMRs and ESMRs, also should be barred. The *Notice*, however, does not propose any such restriction on these other categories of providers.

In addition, many cellular carriers hold non-controlling interests in numerous markets. In many cases, these interests exceed one percent, yet the investments are purely passive and the cellular carrier may exercise no practical control whatsoever over the day to day operation of the system. Precluding a cellular carrier from obtaining new spectrum in a market simply due to a passive minority interest in an overlapping 800 MHz cellular system, even if the interest is more than *de minimis*, does not advance competition.

Finally, if the Commission were to adopt geographic markets for 2 GHz PCS licensing that are larger than cellular MSAs and RSAs, even modest market overlaps due to different borders could preclude a cellular operator from applying for a license. In fact, under some licensing scenarios proposed by the Commission, a single ownership interest in a small MSA could preclude a cellular carrier from applying for vastly greater territory.

⁴⁸ *Notice* at ¶64. The *Notice*'s only expressed support for this argument is a hypothesis that an incumbent cellular carrier might forestall competition by acquiring and warehousing PCS licenses. It is certainly difficult to conceive how this could occur if the Commission were to issue at least five new PCS licenses per market area. Even if the Commission decided to issue only three such licenses, warehousing concerns could be adequately addressed by imposing aggressive system construction and service launch requirements on PCS licensees.

⁴⁹ *Notice* at ¶94.

Accordingly, if the anticompetitive rationale advanced by the Commission is accepted, fairness dictates individualized determinations of eligibility rather than overbroad and arbitrary rules.

**B. THE COMMISSION'S PCS GOALS WOULD BE BEST SERVED BY
LICENSING POLICIES THAT AFFORD OPEN ENTRY AND NO SET-
ASIDES**

As discussed above, cellular participation would promote universality, speed of deployment, diversity and competitive provision of service. Thus, the Commission should erect no barriers to entry against eligible cellular carriers who wish to participate in new PCS spectrum allocations. In the same manner, no set-asides are warranted to favor any particular class of entrants.

In the *Notice*, the Commission proposed a special 10 MHz allocation for PCS systems to complement the existing landline network. No allocation of any kind should be set-aside for LECs. PCS is not a product developed by local exchange carriers or a service dependent upon them for its timely deployment. LECs stand in no better stead than any other type of company in bringing PCS's potential to the public.

It is also unclear as to why the LEC infrastructure should be preferred over the cellular infrastructure as the future backbone for new 2 GHz offerings. This is directly contrary to the Commission's actions in other proceedings, where it is fostering competition to local exchange service.⁵⁰ McCaw believes that the Commission should not erect barriers

⁵⁰ See, e.g., *Expanded Interconnection With Local Telephone Company Facilities*, FCC 92-441 (Oct. 19, 1992).

to 2 GHz providers' use of the cellular infrastructure in order to provide a completely wireless alternative to the local exchange bottleneck.

Furthermore, barring cellular carriers while adopting a set-aside for local exchange carriers would be grossly discriminatory. One interpretation of the proposal in the *Notice* would grant the local exchange carrier affiliates of wireline cellular operators automatic PCS licenses, thereby nullifying the effect of a disqualification of the wireline cellular operator. Under this interpretation, only independent companies like McCaw, who must compete with those wireline carriers, would be barred from offering the new PCS services to their customers. The adoption of such a ban is particularly unfair to companies, like McCaw, that have focused their energies and resources on building a national mobile network that is responsive to all of their customers' personal communications needs, and which is aggressively pursuing new PCS opportunities in the future.

V. LICENSING POLICIES SHOULD PREVENT SPECULATION AND PREFER EXPERIENCED, QUALIFIED APPLICANTS

The *Notice* seeks comment on the most appropriate licensing mechanism for 2 GHz PCS and on ways to shape the Commission's licensing policies to bring those services to the American public as efficiently and rapidly as possible. In general, McCaw believes that 2 GHz PCS licensing policies should minimize speculation and favor the selection of applicants best equipped to exploit spectrum opportunities. More particularly, the selection of an appropriate licensing process will depend on the Commission's decisions concerning the number of 2 GHz PCS licenses it will grant for each market and on the number of PCS

markets it creates. These decisions have a direct impact on the need for selection procedures that focus directly on an applicant's merits, such as comparative hearings, and the acceptability of more expeditious licensing programs, such as auctions or lotteries. In any event, stringent anti-speculation measures should be adopted to ensure that licensees make efficient use of the 2 GHz frequencies they are assigned.

**A. THE PCS LICENSING MECHANISM SHOULD DEPEND UPON THE
GEOGRAPHIC SCOPE AND NUMBER OF LICENSES TO BE AWARDED
FOR 2 GHz SERVICES**

The selection of the most appropriate license award mechanism for new 2 GHz spectrum should be driven by the PCS market structure adopted by the Commission. If entry opportunities are increased by expanding the number of licenses awarded in each market and by creating a large number of PCS service areas, the potential for speculation diminishes and a more streamlined and efficient licensing process can be used. If, on the other hand, entry opportunities are limited, the spectrum rights conveyed to new entrants carry commensurately more value and greater protections are essential for the effective delivery of service to the public.

National licensing provides an extreme example of the relationship between the market structure and the licensing mechanism. From a policy standpoint, it is unthinkable that the FCC would award a handful -- or less -- of nationwide licenses, and thus preclude broad participation, based on the "luck of the draw" or "deep pockets." While McCaw is adamantly opposed to nationwide licensing because only a few valuable assignments would

be available, this approach could not even be responsibly considered without assurances that comparative hearings would be utilized. Only through a comparative process could the Commission ensure that service is planned for all areas of the country, that an acceptable menu of low cost and high quality services will be available, and that spectrum is efficiently used to provide service.

A comparative hearing process likewise should be mandated if market areas based on MTAs were adopted. McCaw is opposed to MTAs because, like national licensing, the use of MTAs contemplates the transfer of vast -- and highly valuable -- spectrum rights. And, like national licenses, MTAs raise substantial spectrum efficiency and warehousing concerns. In this case, the Commission could maximize its stated goals of diversity, ubiquity, speed of deployment and competition only if licenses were awarded to the most qualified applicants on a comparative basis.

If the Commission were to use MSAs and RSAs for 2 GHz licensing, as McCaw has suggested, choices for an appropriate licensing mechanism dramatically improve. If the Commission assigns many licenses in each area and grants all licenses at the same time, the use of MSA/RSA licensing avoids the artificial scarcity that was created in cellular, where the Commission not only limited markets to two licenses each, but also put a small number of attractive markets up for licensing at one time. Where artificially created scarcity is not a concern, the Commission could adopt more resource efficient licensing procedures without severely compromising its stated goals for PCS.

In a scenario with many simultaneous licensing opportunities, for example, McCaw believes auctions may be viable. With MSA/RSA service areas and numerous licenses per market area, there will be no opportunity to warehouse spectrum since sufficient competition will exist to ensure all licensees have incentives to deploy service rapidly. In addition, bidders will be encouraged to pay exactly what they calculate a license to be worth, based on their unique assessments of each market's potential and their own strengths.

Lotteries may also be acceptable in this setting, even though they do not guarantee -- or even aim for -- selection of the most qualified applicant. Lotteries are generally less attractive than auctions, since lotteries do not force applicants to establish what a license is really worth. If the Commission were to adopt lotteries as the appropriate licensing mechanism, lottery reforms are imperative. Just as weighted criteria relating to an applicant's technical expertise and experience might be used in a comparative hearing, lotteries could incorporate some of these same criteria in order to maximize opportunities for the most qualified applicants.⁵¹

B. ANTI-SPECULATION MEASURES ARE NEEDED FOR PCS

McCaw has been a longstanding advocate of effective PCS licensing requirements in order to guard against abuses that have occurred in licensing prior land mobile services. Experience with cellular and 220-222 MHz licensing, in particular, demonstrates that

⁵¹ Weighted lotteries have been used in other contexts, such as in mass media, where significant preferences are granted to applicants in cases in which award of a license or permit serves to increase diversification of ownership. *See* 47 U.S.C. § 309(i)(3)(A) (1989).

compliance with threshold technical and financial requirements should be a mandatory part of any applicant's initial filing.⁵² Absent such standards, the Commission will be unable to weed out unqualified applicants or to stop the deluge of applications from speculators who can not or will not provide services to the public. In the past, speculative applicants have seriously delayed the introduction of new services to the public and have imposed great costs on the Commission and other applicants. Anti-speculation safeguards should be implemented to ensure that the PCS licensing process is not plagued by these same problems.

In particular, any prospective PCS licensee should be able to demonstrate: (1) that it has either the solid financial support or requisite resources to build and operate its proposed system for one year; (2) that it has access to the necessary technology, sites, and resources to make its service operational; (3) that its proposed service is feasible and will not interfere with the services of others, and support such assertions with appropriate technical documentation; and (4) that it has the technical and engineering capabilities to deliver the proposed service to the public within the timeframe proposed in its application. Significant initial application fees would also assist in reducing the number of applications filed by speculators and others who lack the interest or resources to deliver needed services efficiently and reliably.

The Commission also should consider imposing minimum service coverage requirements within authorized service areas and/or requirements for minimum provision of

⁵² See, e.g., *Cellular Radio Service*, 58 Rad. Reg. 2d (P & F) 677, 681-85 (1985); *Acceptance of 220-222 MHz Private Land Mobile Applications*, DA 91-647 (May 24, 1991) (50,000 applications filed within a few weeks).

service to the public such as those imposed on cellular licensees.⁵³ Minimum coverage and service requirements serve the Commission's goals of ubiquity and speed of deployment by ensuring that PCS is rapidly offered to a substantial number of users and that PCS spectrum is not warehoused. In addition, build-out requirements discourage speculation by ensuring that only those applicants seek licenses who are willing to invest substantial sums in the construction and operation of the systems they propose. Furthermore, the anti-speculative effects of the Commission's proposed fee schedules for PCS licenses would be severely undercut unless minimum construction requirements are enacted. The fee calculations implicitly assume that very large systems will be built and fail to take into account that a licensee could propose a system with only one base station, minimizing the application fee. Thus, McCaw believes that minimum construction and service benchmarks are needed for PCS services.

VI. TECHNICAL STANDARDS SHOULD BE LEFT TO THE MARKETPLACE

A. THE NOTICE PROPERLY PROPOSES TO RELY PRIMARILY UPON THE MARKETPLACE TO DEVELOP PCS STANDARDS

In its *PCS Policy Statement and Order*, the Commission stated its intention to establish a PCS advisory committee to aid in the analysis and development of technical

⁵³ See former 47 C.F.R. § 22.903 (1991).

standards.⁵⁴ At that time, the technologies and services at issue had not yet been subjected to large-scale field or marketing investigations in the United States, and the Commission could not have anticipated "the large volume of useful information"⁵⁵ that was subsequently generated from over 150 authorized experimental licenses or the evolution of independent industry standards bodies. As the *Notice* explains, these developments have consequently obviated the need for a Commission-established advisory committee.

McCaw supports this conclusion. Technical advisory committees provide an important and indispensable forum for exchanging information and identifying areas that require further research. However, the creation of another such organization is simply unnecessary as existing industry standards bodies "seem to serve the functions that the Commission might logically assign an advisory committee, such as development of, and making recommendations for, interoperability and interconnectivity standards."⁵⁶

B. FLEXIBLE SERVICE RULES BEST SERVE THE PUBLIC INTEREST

By definition, PCS encompasses a broad range of services comprising various infrastructure designs and implementing technologies. The Commission notes that "[t]he PCS experimental authorizations . . . include a diverse array of PCS concepts from wide

⁵⁴ *Amendment of the Commission's Rules To Establish New Personal Communications Services*, 6 FCC Rcd 6601 (1991) (Policy Statement and Order).

⁵⁵ *Notice* at ¶106.

⁵⁶ *Notice* at ¶106.

area mobile voice and data services to wireless office devices."⁵⁷ Some of these licensees are in the early stages of their experiments while others are currently conducting propagation tests to determine coverage areas, and performing market studies to determine consumer demand.⁵⁸ As a consequence, many questions persist concerning 2 GHz PCS. At this point, rigid or detailed technical standards would be premature, serving only to constrain further technological advances. Rather, flexible service rules are necessary to encourage the continued innovation and growth of PCS services.⁵⁹

Reflecting the nascence of the industry, the *Notice* proposes a flexible approach designed to "provide the opportunity for these PCS services and technologies to develop fully"⁶⁰ and to "foster the most economic and efficient use of the spectrum," while "ensur[ing] that existing services and PCS operations are protected from interference."⁶¹ McCaw generally supports this proposed regulatory approach. Having had experience with the establishment of cellular service, McCaw concurs that micromanagement, or intrusion into service-related issues, is unnecessary, and would disserve the public by delaying the introduction of valuable new technologies. As with cellular, detailed technical and compatibility standards would impede "both development of new [PCS] services and

⁵⁷ *Notice* at ¶105.

⁵⁸ *Notice* at ¶20.

⁵⁹ In this regard, McCaw notes that the Commission has indicated that 2 GHz PCS providers would be permitted to offer fixed services on an ancillary basis. *Notice* at 30. McCaw believes the ability of carriers to offer fixed services should not be constrained.

⁶⁰ *Notice* at ¶105.

⁶¹ *Notice* at ¶108.

accommodation of the large number of additional subscribers anticipated in the future."⁶²

While McCaw recognizes that some technical standards will eventually be needed, they should be as limited as possible and formulated by existing industry standards bodies, allowing greater responsiveness to the evolving marketplace.

Although technical implementation issues should largely be left to each licensee's discretion, safety guidelines for portable phones need to be addressed by establishing rule-based standards. Wireless service providers and their customers need standards to assure protection from undue RF exposure. Because the Commission has asserted jurisdiction over customer handsets and authorizes their use,⁶³ it is appropriate that the Commission establish RF protection standards as part of that authorization.⁶⁴ The Commission previously recognized this responsibility to consider the biological effects of radio frequency radiation when authorizing the use of radio frequency devices and, in fact, adopted the 1982 ANSI frequency protection guidelines.⁶⁵ The IEEE, however, has recently revised these guidelines, eliminating the automatic exclusion for devices with operating power of 7 watts or less. It is therefore appropriate for the Commission to clarify the applicability of the IEEE revision to the operation of personal communications devices.

⁶² Notice at ¶24.

⁶³ *Deregulation of Mobile Customer Premises Equipment*, 96 F.C.C.2d 112 (1983).

⁶⁴ Standards for protection from RF hazards should be accomplished through the adoption of consensus standards established by an independent panel of experts from a variety of backgrounds -- academia, industry, government, and private research labs -- and varied disciplines. The standards should be established on the basis of peer-reviewed, independently-verified scientific studies.

⁶⁵ American National Standards Institute, *Radio Frequency Protection Guidelines* (1982). See also *Biological Effects of Radiofrequency Devices*, 100 F.C.C.2d 543 (1985).